

Serial No. 09/371,776

AMENDMENTS TO THE CLAIMS:

Please amend the claims as shown in the following claim listing. The claim listing replaces all prior claim versions and claim listings in the application:

1. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion positioned outside said chamber prior to said inflation fluid being introduced into said container, said first portion being deformed into said chamber by the pressure of the inflation fluid when introduced into said container, said rupturable closure member having a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, ruptures said closure member by shearing said first portion from said second portion.

2. (Canceled).

Serial No. 09/371,776

3. (Original) An apparatus as defined in claim 1 wherein said disk is circular and has a central dome-shaped portion comprising said first portion.

4. (Original) An apparatus as defined in claim 1 wherein said initiator, when actuated, shears said first portion from said second portion and said inflation fluid acting on said second portion causes said second portion to petal away from said support and open said passage to provide a flow of inflation fluid from said container through said passage.

5. (Original) An apparatus as defined in claim 4 wherein said second portion blocks said passage prior to petaling away from said support and opening said passage.

6. (Original) An apparatus as defined in claim 3 wherein said initiator has a base supported by a portion of said container, and said support comprises a hollow member having a second end opposite said open first end supported by said base, said initiator extending into said hollow member.

7. (Previously presented) An apparatus as defined in claim 1 wherein said rupturable closure member is plastically deformed into said chamber by the pressure of the inflation fluid and is work hardened due to the plastic deformation.

Serial No. 09/371,776

8. (Previously presented) An apparatus as defined in claim 1 wherein said rupturable closure member has a third portion encircling said second portion and further including a connection between said third portion and said container.

9. (Previously presented) An apparatus as defined in claim 1 wherein said open first end of said support includes a circular rim defining an opening into said chamber, said rim having a surface engaging said closure member.

10. (Previously presented) An apparatus comprising:
an inflatable vehicle occupant protection device for inflation between a vehicle occupant and a side structure of the vehicle;

a container storing inflation fluid under pressure for inflating said inflatable vehicle occupant protection device, said container having an outlet passage through which inflation fluid flows from said container toward said vehicle occupant protection device;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion spaced from an open first end of said support prior to said inflation fluid being introduced into said container, said first portion being deformed into said chamber by the pressure of the inflation fluid when introduced into said container, said

Serial No. 09/371,776

rupturable closure member having a second ring-shaped portion encircling said first portion outside of said chamber; and
an initiator which, when actuated, ruptures said closure member by shearing said first portion from said ring-shaped portion.

11. (Canceled).

12. (Original) An apparatus as defined in claim 10 wherein said disk is circular and has a central dome-shaped portion comprising said first portion.

13. (Original) An apparatus as defined in claim 10 wherein said initiator, when actuated, shears said first portion from said second portion and said inflation fluid acting on said second portion causes said second portion to petal away from said support and open said passage to provide a flow of inflation fluid from said container through said passage.

14. (Original) An apparatus as defined in claim 13 wherein said second portion blocks said passage prior to petaling away from said support and opening said passage.

15. (Previously presented) An apparatus as defined in claim 10 wherein said rupturable closure member is plastically deformed into said chamber by the pressure of the inflation fluid and is work hardened due to the plastic deformation.

Serial No. 09/371,776

16. (Previously presented) An apparatus as defined in claim 10 wherein said rupturable closure member has a third portion encircling said second portion and further including a connection between said third portion and said container.

17. (Original) An apparatus as defined in claim 10 wherein said inflatable vehicle occupant protection device is maintained inflated for at least seven seconds.

Claims 18-22 (Canceled).

23. (Previously presented) Apparatus as defined in claim 1, wherein said inflation fluid consists essentially of helium.

24. (Previously presented) Apparatus as defined in claim 1, wherein said initiator, when actuated, produces combustion gasses and a shock wave, said combustion gasses and said shock wave acting on said first portion to shear said first portion from said second portion.

25. (Previously presented) Apparatus as defined in claim 3, wherein said initiator, when actuated, produces combustion gasses and a shock wave, said combustion gasses and said shock wave acting on said dome-shaped first portion to reverse said dome-shaped first portion and shear said dome-shaped first portion from said second portion.

Serial No. 09/371,776

26. (Previously presented) Apparatus as defined in claim 9, wherein said circular rim helps define a periphery of said first portion where said closure member engages said circular rim.

27. (Previously presented) Apparatus as defined in claim 9, wherein said first portion extends into said chamber through said opening.

28. (Previously presented) Apparatus as defined in claim 10, wherein said inflation fluid consists essentially of helium.

29. (Previously presented) Apparatus as defined in claim 10, wherein said initiator, when actuated, produces combustion gasses and a shock wave, said combustion gasses and said shock wave acting on said first portion to shear said first portion from said second portion.

30. (Previously presented) Apparatus as defined in claim 12, wherein said initiator, when actuated, produces combustion gasses and a shock wave, said combustion gasses and said shock wave acting on said dome-shaped first portion to reverse said dome-shaped first portion and shear said dome-shaped first portion from said second portion.

Serial No. 09/371,776

31. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a dome-shaped first portion deformed into said chamber by the pressure of the inflation fluid and a ring-shaped second portion encircling said first portion outside of said chamber, second portion blocking flow of said inflation fluid through said passage; and

an initiator that, when actuated, produces combustion gasses and a shock wave, said combustion gasses and said shock wave acting on said first portion to shear said first portion from said second portion, said inflation fluid acting on said second portion to cause said second portion to petal away from said support and open said passage to provide a flow of said inflation fluid from said container through said passage when said first portion is sheared from said second portion.

32. (Previously presented) Apparatus as defined in claim 8, wherein said connection between said third portion and said container comprises a weld connection.

Serial No. 09/371,776

33. (Previously presented) Apparatus as defined in claim 16, wherein said connection between said third portion and said container comprises a weld connection.

34. (Previously presented) Apparatus as defined in claim 1, wherein said support includes a side wall having an inner surface defining said chamber and an opposite outer surface, said inflation fluid flowing around said support adjacent said outer surface and through said outlet passage when said closure member is ruptured.

35. (Previously presented) Apparatus as defined in claim 10, wherein said support includes a side wall having an inner surface defining said chamber and an opposite outer surface, said inflation fluid flowing around said support adjacent said outer surface and through said outlet passage when said closure member is ruptured.

36. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

Serial No. 09/371,776

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber, said first and second portions having a substantially flat configuration prior to said inflation fluid being introduced into said container; and

an initiator which, when actuated, ruptures said closure member.

37. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, shears said first portion from said second portion, said inflation fluid acting on said second portion and causing said second portion to

Serial No. 09/371,776

petal away from said support and open said passage to provide a flow of inflation fluid from said container through said passage.

38. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber, said rupturable closure member having a third portion encircling said second portion and further including a connection between said third portion and said container; and

an initiator which, when actuated, ruptures said closure member by shearing said first portion from said second portion.

39. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

Serial No. 09/371,776

a container storing inflation fluid under pressure,
said container having an outlet passage through which
inflation fluid flows from said container;

a rupturable closure member fixed to said container
and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member
defining a chamber adjacent said rupturable closure member,
said rupturable closure member having a first portion deformed
into said chamber by the pressure of the inflation fluid and a
second ring-shaped portion encircling said first portion
outside of said chamber; and

an initiator which, when actuated, produces
combustion gasses and a shock wave, said combustion gasses and
said shock wave acting on said first portion to shear said
first portion from said second portion.

40. (Previously presented) An apparatus comprising:

an inflatable vehicle occupant protection device for
inflation between a vehicle occupant and a side structure of
the vehicle;

a container storing inflation fluid under pressure
for inflating said inflatable vehicle occupant protection
device, said container having an outlet passage through which
inflation fluid flows from said container toward said vehicle
occupant protection device;

a rupturable closure member fixed to said container
and blocking flow of inflation fluid through said passage;

Serial No. 09/371,776

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, shears said first portion from said second portion, said inflation fluid acting on said second portion and causing said second portion to petal away from said support and open said passage to provide a flow of inflation fluid from said container through said passage.

41. (Previously presented) An apparatus comprising:

an inflatable vehicle occupant protection device for inflation between a vehicle occupant and a side structure of the vehicle;

a container storing inflation fluid under pressure for inflating said inflatable vehicle occupant protection device, said container having an outlet passage through which inflation fluid flows from said container toward said vehicle occupant protection device;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a

Serial No. 09/371,776

second ring-shaped portion encircling said first portion outside of said chamber, said rupturable closure member having a third portion encircling said second portion and further including a connection between said third portion and said container; and

an initiator which, when actuated, ruptures said closure member by shearing said first portion from said ring-shaped portion.

42. (Previously presented) An apparatus comprising:

an inflatable vehicle occupant protection device for inflation between a vehicle occupant and a side structure of the vehicle;

a container storing inflation fluid under pressure for inflating said inflatable vehicle occupant protection device, said container having an outlet passage through which inflation fluid flows from said container toward said vehicle occupant protection device;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, produces combustion gasses and a shock wave, said combustion gasses and

Serial No. 09/371,776

said shock wave acting on said first portion to shear said first portion from said second portion.

43. (Previously presented) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member, said support including a side wall having an inner surface and an opposite outer surface, said inner surface defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, ruptures said closure member by shearing said first portion from said second portion, said inflation fluid flowing around said support adjacent said outer surface and through said outlet passage when said closure member is ruptured.

Serial No. 09/371,776

44. (Previously presented) An apparatus comprising:

an inflatable vehicle occupant protection device for inflation between a vehicle occupant and a side structure of the vehicle;

a container storing inflation fluid under pressure for inflating said inflatable vehicle occupant protection device, said container having an outlet passage through which inflation fluid flows from said container toward said vehicle occupant protection device;

a rupturable closure member fixed to said container and blocking flow of inflation fluid through said passage;

a support for said rupturable closure member, said support including a side wall having an inner surface and an opposite outer surface, said inner surface defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber by the pressure of the inflation fluid and a second ring-shaped portion encircling said first portion outside of said chamber; and

an initiator which, when actuated, ruptures said closure member by shearing said first portion from said second portion, said inflation fluid flowing around said support adjacent said outer surface and through said outlet passage when said closure member is ruptured.

Serial No. 09/371,776

45. (New) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member blocking flow of inflation fluid through said passage;

a support for said rupturable closure member defining a chamber adjacent said rupturable closure member, said rupturable closure member having a first portion deformed into said chamber and into a first configuration by the pressure of the inflation fluid and a second portion encircling said first portion, said first portion having a second configuration prior to said inflation fluid being introduced into said container; and

an initiator that, when actuated, ruptures said closure member.

46. (New) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container;

a rupturable closure member attached to said container and blocking flow of inflation fluid through said passage, said rupturable closure member having at least a

Serial No. 09/371,776

portion deformed by the pressure of the inflation fluid in said container and having a part that ruptures to enable inflation fluid flow from said container and that remains attached to said container when ruptured; and

an initiator that, when actuated, ruptures said closure member.

47. (New) An apparatus for providing inflation fluid to inflate an inflatable vehicle occupant protection device, said apparatus comprising:

a container for storing inflation fluid under pressure, said container having an outlet passage through which inflation fluid flows from said container to the inflatable vehicle occupant protection device;

a rupturable closure member connected to said container and having a part blocking flow of inflation fluid through said passage to the inflatable vehicle occupant protection device;

a support;

a first portion of said closure member being deformed toward said support by the pressure of the inflation fluid when introduced into said container; and

an initiator that, when actuated, ruptures said part of said closure member to enable inflation fluid flow to the inflatable vehicle occupant protection device, said part remaining connected with said container.